Case Report

Integrative Yoga and Naturopathy Management of Lumbar Radiculopathy: case study

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ABSTRACT

Lumbar radiculopathy (sciatica) is a painful, debilitating condition characterized by excruciating pain, numbness, tingling, or burning sensations over the dermatomal course of the sciatic nerve distribution. It is usually caused by nerve root compression or irritation, disc herniation, vascular anomalies, or muscular or bony compression. We report the case of a 26-year-old male with the complaint of low back pain associated with pain radiating to the right leg. Based on clinical examination, it was diagnosed as lumbar radiculopathy. Yoga and Naturopathy interventions were given for 16 days in the outpatient ward. After the intervention, the pain gradually decreased. The Visual Analogue Scale (VAS) was reduced from 7 to 3. No adverse effects were observed during the treatment. Thus, this case showed that yoga and naturopathy have been shown to decrease the pain and frequency of symptoms of lumbar radiculopathy, recommending further future studies.

Key words: Lumbar radiculopathy, Yoga therapy, Naturopathy, Physiotherapy

Lumbar radiculopathy (sciatica) is a painful, debilitating condition characterized by excruciating pain, numbness, tingling, or burning sensations over the dermatomal course of the sciatic nerve distribution [1]. Globally, its prevalence is about 1.2 to 43% [2]. It is more common among men, and its prevalence is 5.3% in men and 3.7% in women [3]. It is usually caused by nerve root compression or irritation, dis herniation, vascular anomalies, or muscular or bony compression [4, 5]. The leading cause of sciatica is lumbar disc herniation in 85% of patients [4]. Risk factors for sciatica include age, gender, obesity, smoking, occupational factors, and health status [6].

Diagnosis mainly involves proper history taking and physical examination, like the straight leg raising test and the crossed straight leg raising test, which indicate nerve root tension. Imaging like Magnetic Resonance Imaging (MRI) is indicated in chronic cases in which patients do not respond to conservative treatment for 6 to 8 weeks [7]. Treatment usually involves the administration of pain-relieving drugs, non-steroidal anti-inflammatory drugs, opioids, and surgical procedures [8]. But the preferred treatment for sciatica includes manual therapy and exercise, as there are no big differences in clinical outcome between conservative care and surgery [9].

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CASE PRESENTATION

A 26-year-old male presented with upper- and lower-back pain radiating to the right leg, accompanied by numbness for four months. Pain worsened in the early morning and during transitions from lying to standing and improved with activity. The patient was taking Allopathic medications for 3 months: Tablet DEFTA 60mg (for muscle pain and inflammation) and Tab Renerve plus (for neuropathic pain), twice daily without much relief from the symptoms. The details of the patient's vital examination are given in Table 1.

Table 1. Vital data of the patient.

Sl. No.	Vital test	Values
1	Blood pressure	118/76 mm of hg
2	Pulse rate	83bpm
3	Respiratory rate	16cpm
4	SPO_2	96%
5	Temperature	Afebrile
6	BMI	19.6Kg/m^2
7	Height	163cm
8	Weight	52kg

Bowel sounds were regular, and micturition was of normal frequency. Appetite and digestion were good. The patient was well oriented with a good complexion. Clinical examination

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revealed positive Straight Leg Raise (unilateral (between 45^0 to 75^0 angle), Cross SLR, and Slump tests. On examination facial changes, changes in neck and nape of neck denotes accumulation of morbid matter. The facial examination showed back encumbrance, which according to naturopathy denotes deposition of morbid matter on the back of the body.

X-ray findings indicated reduced disc space at L3–L4, L4–L5, and L5–S1. A diagnosis of lumbar radiculopathy was made. The treatment protocol followed for 16 days mainly relied on reducing nerve root compression, which is the main cause of pain and other neurological symptoms. Thus, the treatments were aimed at reducing pain, inflammation, and toxins by improving the vitality and thus restoring the health of the patient.

INTERVENTIONS

A multidisciplinary treatment plan was given to the patient to follow for 16 days, which included Naturopathy, Physiotherapy, Yoga, Home-based remedies and diet changes and Ozone therapy.

Naturopathy Treatments

Naturopathic protocols recommended for the patient were for 80 minutes daily. The details are given in Table 2.

Table 2. Naturopathic protocols are advocated for the patient

Sl. No.	Treatment Regimen	Time (In Minutes)
1	Mud pack and eye pack	15
2	Partial massage to the whole back	10
3	Oil with hot sand fomentation to the whole back	10
4	Acupressure to the lower back and hips	10
5	Mustard pack to the whole spine	15
6	Steam bath	10
7	Neutral spinal spray	10

Physiotherapy Treatments:

The daily physiotherapy regimen included massaging with oil and applying infrared rays to the lower back regions and both legs. The other treatments advocated were interferential therapy to the lower back and the local application of ultrasound waves to the lower back region, was administered to the lower back for 16 days (Figure 1).



Figure 1. Physiotherapy techniques

Massage therapy

Massager therapy, which involved the manipulation of soft tissues using techniques such as passive touch,digital stroking, palmar stroking, friction, effleurage, tapotement and superficial vibration.

Yoga Therapy

The patient was asked to practice the following yogasanas at home daily. These asanas were: Setubandhasana, Bhujangasana, Marjariasana, Pavanamuktasana, Ustrasana, Deep Relaxation Technique.

Home Remedies

The home remedies for the patient were for 35 minutes, which included sun bath for 15 minutes, hot fomentation, and mustard pack to lower back region for 10 minutes.

Diet Therapy Protocol

A proper diet plan was given to the patient to follow every day for 16 days. The details are given in Table 3.

Table 3. Diet plan

Timing	Diet
6:00 am	1-2 glasses of lukewarm water
8:00 am	Millet idli /Dosa/Upma
11:00 am	Mixed vegetable salad-100g
1:00 pm	Multigrain chapati with boiled vegetables(200g) with jeera water
4:00 pm	Tender coconut water/Buttermilk with Asafetida
6:00 pm	Ragi roti with boiled vegetables or Moong dal kichadi

Ozone Therapy

Ozone therapy was administered on alternate days for a period of 16 days. Thus, 4 injections were given for each site. These included paraspinal and periarticular injections for a dose of 10µg/ml (Figure 2)



Figure 2. Ozone Therapy

RESULTS

During treatment, the patient's condition gradually started to improve. After 16 days of intervention, there are marked changes in pain intensity and in scores. VAS (visual analogue

scale) was reduced from 7 to 3. The details of the VAS are given in Table 4.

Table 4. VAS scores of the patient during the treatment period

Day	VAS
1st	7
2nd	7
4th	7
6th	6
8th	6
10th	5
12th	5
14th	4
16th	3

DISCUSSION

In the present case of lumbar radiculopathy, 16 days of multidisciplinary therapy. Interferential therapy was given along the nerve root pathway to prevent or reduce nerve root compression and better symptomatic relief for the patient.Localised ultrasound,exercise therapy and oil+infrared rays were given in physiotherapy treatment modality. In this case root cause of the disease was because of sedentary lifestyle and interrupted circadian rhythm.

Massage therapy helps in relieving pain and aids in promoting mental relaxation. Asanas like Bhujangasana, Setubandhasana, Marjariasana, Ustrasana cause discs to be compressed, which squeezes out stale disc fluid and then expand, bringing a fresh supply. Thus, asana movements make systematic stretching, bending, wringing, and soaking of the discs particularly effective in delivering oxygen and required nutrients to the disc, making a healthy and pain-free spine. Savasana enables the relaxation of the whole psycho-physiological system. In this case initial few days patient felt symptomatic relief and reappearance of symptoms daily, but after the 13th day, there was a reduction in the intensity, reappearance of pain, and numbness, and the daily occurrence of pain in the early morning. There are no previous studies of lumbar radiculopathy that have included a multidisciplinary approach like neutral spinal spray, ozone therapy, physiotherapy, acupressure and infrared rays as an integrative approach to treatment. In the present case, ozone injections were given along with other treatment modalities to provide better symptomatic relief. Massage improves pain threshold (decreases pain) by increasing the release of endorphins. It stimulates large-diameter nerve fibers, which inhibit inputs onto T cells and excite small-diameter fibers, thereby relieving pain [10]. Massage also causes relaxation mentally and physically by improving parasympathetic activity and reducing the cortisol level [11].

Yoga causes contraction of the posterior spinal muscles, which elongate and enable the spine to straighten up. This stretch relieves nerve root compression, which is the main cause of sciatic pain [12]. Asanas (Bhujangasana, Setubandhasan, Marjariasana, Ustrasana) also address the blockage of energy in any joint and release it, allowing it to flow freely to enhance strength and sense of relaxation [13]. Plant-based diet, rich in fruits, vegetables, and whole grains, has been shown to improve chronic pain and function, indicating the potential benefits of dietary interventions in managing musculoskeletal conditions [14]. Mud therapy reduces inflammatory mediators such as leukotriene-B4 and PGE2 and tissue-destructive cytokines like tumor necrosis factor-alpha [15]. Physiotherapy included lumbar stabilization exercises aimed to strengthen the intrinsic lumbar stabilizing muscles, lumbar multifidi, internal obliques, and transversus abdominis, whereas dynamic strengthening exercises engage the flexor and extensor muscles to improve lumbar stability and strength [16].

Transcutaneous Electrical Nerve Stimulation (TENS) is a pain treatment method that uses pulsed electrical currents to deliver controlled impulses through the skin, aiming to alter and reduce the level of pain experienced by patients, typically generating a continuous series of pulsed currents. Massage therapy can alleviate pain by loosening muscles, reducing spasms, and releasing endorphins. It also enhances function by reducing inflammation and promoting healing, improving the range of motion [17].

Further large-scale population studies with longer study periods are needed to understand the effectiveness of the intervention and to establish the present study results in the future, as this study was done on a single patient for a short treatment period of 16 days.

CONCLUSION

The present study results show that Yoga and Naturopathy treatments are effective in decreasing pain and associated symptoms in the case of sciatica by relieving nerve root compression without any adverse effects. The study can further be proceeded with a longer duration and a larger sample size in the future.

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